

CLAIMS

1. A data communication apparatus comprising
an enclosure;
a loop coil antenna arranged so that at least a portion of a conductor extends along the lateral surface of said enclosure; and
a semiconductor integrated circuit connected to said loop coil antenna, said semiconductor integrated circuit having non-contact data communication over said loop coil antenna with an exterior communication device by using electromagnetic induction.
2. The data communication apparatus according to claim 1 wherein said conductor is arranged for extending along the entire periphery of said enclosure.
3. The data communication apparatus according to claim 1 wherein said loop coil antenna is of a three-dimensional shape, with said conductor being mounted for extending spirally along the lateral surfaces of said enclosure.
4. The data communication apparatus according to claim 1 wherein said loop coil antenna is formed by forming a plurality of patterned linear copper foils on a major surface of a flexible insulating substrate along a direction perpendicular to the longitudinal direction of said insulating substrate.
5. The data communication apparatus according to claim 1 wherein said loop coil antenna is formed by being embedded in a lateral surface of said enclosure.
6. The data communication apparatus according to claim 1 wherein said

semiconductor integrated circuit has a non-contact IC card function and/or a reader/writer function.

7. The data communication apparatus according to claim 1 wherein said loop coil antenna is formed by a first loop coil antenna, electrically connected to a non-contact IC card part, implementing the non-contact IC card function of said semiconductor integrated circuit, and a second loop coil antenna, electrically connected to a reader/writer circuit part, implementing the reader/writer function of said semiconductor integrated circuit, and wherein both of said first loop coil antenna and the second loop coil antenna are arranged on the lateral side of said enclosure.

8. The data communication apparatus according to claim 1 further comprising an antenna for a cellular phone and a cellular phone functional part for implementing the cellular phone function.

9. The data communication apparatus according to claim 1 wherein said enclosure includes a main body part and a display part mounted for opening/closure relative to said main body part.

10. The data communication apparatus according to claim 1 wherein one of said first and second loop coil antennas is arranged in said main body part enclosure and the other of said first and second loop coil antennas is arranged in said display part enclosure.

11. The data communication apparatus according to claim 1 wherein both of said

first and second loop coil antennas are arranged in said enclosure of said main body part.

12. The data communication apparatus according to claim 1 wherein both of said first and second loop coil antennas are arranged in said enclosure of said display part.